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# COMMERCIAL POULTRY FARMING

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## IN NOVA SCOTIA

by

G. C. Retson

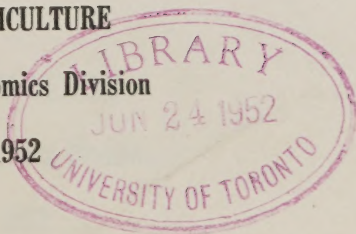



Canada

DEPARTMENT OF AGRICULTURE

Marketing Service - Economics Division

Ottawa, March 1952





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## COMMERCIAL POULTRY FARMING IN NOVA SCOTIA

G.C. Retson 1/

### INTRODUCTION

Significant changes have taken place in the Nova Scotia poultry industry during recent years. A rapid expansion in production has been accompanied by new developments in breeding, management and marketing. These developments have been associated with changes in the organization of the enterprise on many farms and a revision of the emphasis placed on various phases of production. Since the enterprise tends to be highly commercialized, it is probable that many of these developments are related to variations in returns from the poultry flock.

The main purpose of this study is to examine and analyse some of the relationships between flock returns and various phases of poultry management and practice. The analysis is based mainly on information provided by 118 poultrymen and covers their business operations for the period October 1, 1947 to September 30, 1948.

### Area and Scope of Study

Poultry flocks studied were located at scattered points throughout Nova Scotia, with 11 of the 18 counties in the province being represented. The greatest concentration was in the Annapolis Valley which is the major poultry producing area. The production of eggs and poultry on these farms was sold largely on a wholesale basis, the main outlets being the Halifax and Sydney market areas.

Analysis of the poultry business was confined to the hen or chicken enterprise, no special detail being secured on other types of poultry production. The study was further limited to farms housing at least 100 layers in the fall and on which egg production was the major source of poultry receipts. Enterprises ranged from mixed farm flocks, housing around 100 layers, to specialized poultry farms keeping an average of from three to four thousand layers for the year. The average

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number of layers for the 118 farms in the study was 537. Seven of the farms in the study had approved flocks and sold some hatching eggs but none operated hatcheries.

While the general organization of the poultry enterprises was relatively similar, the farms on which they were located differed widely in size, organization and the relative importance of the poultry flock to other farm enterprises. On the basis of productive work on various enterprises, 47 of the farms were classified as poultry farms, 39 as mixed, 16 as part-time farms, ten as dairy farms and six as fruit farms.

It is appreciated that data from 118 poultry flocks provide a rather limited basis for analysis of the influence on returns of the various factors of poultry management discussed herein. At the same time it may be noted that the material is presented against a background of discussion with many successful and unsuccessful poultrymen in addition to those from whom records were secured, as well as with others associated with the industry in various capacities. It was not possible to secure detailed financial data on all of the relationships discussed. For example, the small number of poultrymen who kept pullets over for a second year did not provide sufficient data for a financial analysis of the relative merits of hens versus pullets. Most of the poultrymen had very definite ideas on this and other phases of poultry management as a result of their experience. Every effort was made to record their opinions and these were of considerable value in the evaluation of various management practices.

Since the study is primarily concerned with the analysis of the poultry business on these farms, data relating to other enterprises and to the overall farm business will be kept to a minimum. This report is limited mainly to the discussion of the place of poultry on Nova Scotia farms.

### Economic Conditions

The business year of the study was characterized by rapidly rising feed prices following removal of subsidy payments on coarse grains and feed wheat. There was a slight increase in egg prices. The relationship between feed and egg prices is indicated in Table 1.

It will be noted from Table 1 that the years 1947 and 1948 were not particularly favourable to poultry producers,



since feed prices were advancing considerably faster than egg prices. The actual period covered by the study (October 1, 1947 - September 30, 1948) was in some respects even less favourable with an egg-feed ratio (pounds of feed that one dozen eggs will buy) at 12.2. The unfavourable egg-feed ratio was offset to a considerable extent, however, by a sharp rise in poultry prices. Most poultrymen were able to dispose of their layers during the spring and summer of 1948 at a price approximately equal to that at which they had inventoried them in the fall. There was also a relatively strong demand for pullets in the fall of 1948 and prices in most cases were somewhat above the actual cost of raising these birds.

Table 1.- Egg Prices, Feed Costs and Egg-Feed Ratio  
in Nova Scotia, 1936-48 a/

Year	: Price per	:	:	Egg-feed ratio
	: dozen eggs	: Feed cost	:	(pounds of feed
	: grade A large	: per cwt.	:	1 doz. eggs would buy)
	:	:	:	
	- cents -	- dollars -		
1936	29	2.17		13.3
1938	29	1.38		21.0
1940	30	1.51		19.8
1942	39	1.93		20.2
1944	38	2.37		16.0
1946	41	2.51		16.3
1947	42	2.98		14.0
1948	51	3.72		13.7

a/ Data are based on monthly dealer quotations of farm prices for eggs and feed. Feed prices were calculated on the basis of 55 per cent mash and 45 per cent scratch.

Farmer reaction to the poultry situation during the business year of the study was one of extreme pessimism in the fall of 1947, with a large movement out of poultry. Inventory values were relatively low with many poultrymen having trouble in disposing of surplus pullets. Heavy sales of poultry during the fall and winter and a reduced hatch in the spring of 1948 caused an upswing in poultry prices and a considerable increase in the price of ready-to-lay pullets during the latter

part of the year. Egg prices in 1948 advanced nine cents<sup>a</sup> over the the average of 1947. At the close of the business year a considerable degree of optimism over the poultry situation was expressed by those "who had stayed with the business."

## THE POULTRY ENTERPRISE

The poultry flock is one of the most highly commercialized of the major enterprises conducted on Nova Scotia farms. Turn-over is rapid and heavy outlays for purchased feed are necessary since relatively little home-grown grain is available. This major dependence on purchased feed plus the uncertainties and fluctuations of feed and egg prices, particularly in recent years, tend to characterize the business side of the enterprise.

### Capital Investment

Investment in the poultry included in the study averaged \$3,166 per farm. This represented 28 per cent of the total average farm capital of \$11,225. The relative investment in poultry flock, buildings, equipment, feed and supplies is set forth in Table 2.

Table 2.- Average Investment in Poultry Enterprise - 118 Poultry Flocks, Nova Scotia, 1947-48

Items	:	Average	:	Per cent
	:	per farm	:	of total
	:		:	
		- dollars -		- per cent -
Poultry flock		1,184		38
Buildings		1,720		54
Equipment		228		7
Feed and supplies		34		1
Total		3,166		100

The average investment of \$1,184 in poultry flock was made up largely of layers, although a few cockerels were included. The average value was \$1.79 per bird. There was relatively little variation in value per bird from farm to farm. Poultry buildings represented the major item of poultry capital, making up more than half of the total investment in the enterprise. Average investment in buildings amounted to \$2.26 per layer housed.

Since most of the poultrymen sold their eggs on a whole-sale basis and did not operate hatcheries, investment in poultry equipment was relatively low. Investment in feed and supplies was also low because much of the feed was purchased on a credit



basis, and many poultrymen purchased their feed in small amounts in order to have a fresh supply. Total capital invested in the poultry enterprise averaged \$4.22 per layer housed.

### Receipts

Receipts from the poultry enterprise consisted mainly of sales of eggs and poultry. In addition the enterprise was credited with the value of eggs and poultry used in the house and the increase in flock inventory. The value of these items is shown in Table 3.

Table 3.- Average Receipts per Poultry Enterprise - 118  
Poultry Flocks, Nova Scotia, 1947-48

Items	:	Average	:	Per cent
	:	per enterprise	:	of total
	:		:	
		- dollars -		- per cent -
Egg sales		4,026		70
Poultry sales		1,366		24
Household use		85		1
Inventory increase		313		5
Total		5,790		100

As already indicated, most of the eggs and poultry were sold on a wholesale basis. The average price received for eggs was 43.8 cents per dozen. Poultry sales consisted mainly of sales of yearling layers. The inventory increase was due to an increase in per bird values rather than an increase in size of flock. No credit was allowed for manure. On the other hand, no charge was made for hauling litter and manure away from the laying house or for straw used as litter.

### Expenses

In calculating poultry expenses, charges were made for the various cash or non-cash items consumed by or needed in the operation of the enterprise. No charge, however, was made for labour which in most cases was provided entirely by the farm operator or members of the family. Aside from difficulties in placing a value on the labour of the operator, it was considered preferable to express poultry earnings in terms of a return to labour for time spent on the flock rather than as enterprise returns. The charges for the various items

(not including labour) are described in Table 4.

Table 4.- Average Expenses per Poultry Enterprise - 118 Poultry Flocks in Nova Scotia, 1947-48

Items	Average per enterprise	Per cent of total
	- dollars -	- per cent -
Purchased feed	3,315	81
Home grown feed	37	1
Purchased birds	337	8
Use of buildings and equipment	169	4
Auto, truck and tractor	86	2
Fuel and electricity	49	1
Interest on investment in poultry	54	2
Other	53	1
Total	4,100	100

As noted previously, home-grown feed was not an important item of expense. On many farms it consisted only of range for the replacement flock. Purchased birds consisted mainly of baby chicks, although a few poultrymen purchased all their replacements as mature "pullets". A number of individual items have been grouped together in the item "Use of buildings and equipment", including depreciation, repairs, interest, taxes and insurance. The two major items included under "Other" were litter and disinfectants.

#### Financial Summary

A summary of the poultry business is presented in Table 5. Poultry labour returns averaged \$1,690 per farm and represent the return for all labour engaged in the poultry enterprise including that of the operator, members of the family and hired workers.

An average of 1,536 hours of labour per farm were spent on the poultry enterprise. The average hourly return for time spent on the enterprise thus amounted to \$1.10.

Table 5.- Summary of Poultry Enterprise Business - 118  
Poultry Flocks in Nova Scotia, 1947-48

	:	
	:	Dollars
Poultry receipts		5,790
Poultry expenses		<u>4,100</u>
Poultry labour returns		1,690
Labour on poultry (hours)		1,536
Poultry labour returns per hour		1.10

#### Variations in Poultry Labour Returns

Poultry labour returns varied widely from farm to farm. The five least successful farmers had average returns of minus \$245. Thus, they received no return for their labour but lost \$245 on their poultry businesses. The five most successful poultrymen had average returns of \$9,250 with an average return of \$2.54 per hour for time spent on the enterprise. Such variations in poultry labour returns reflect the influence of various combinations of organization and management and price-cost relationships.

In the poultry enterprise much of the variation in returns is due to variations in poultry management or practices, particularly since individual poultrymen are not likely, in any one year, to have special advantages over their neighbours, which might account for differences in returns. Variations in soil, climate and topography, for example, play an important part in explaining variations in returns in many other farm enterprises but exert relatively little influence on poultry returns. Advantages in respect to quality of livestock which may in part account for variations in returns in such an enterprise as dairying, are of much less significance in the poultry business. The average poultryman can and often does secure his chicks from the same hatchery as his neighbour. Some of the five most and five least successful poultrymen mentioned above had the same breeds of poultry and secured them from the same hatchery. Since the industry is almost entirely based on purchased feed, the cost and quality conditions of feed is very similar. Many of the successful and unsuccessful poultrymen fed the same brands of feed, purchased at comparable prices. Variations in egg prices may account for some of the variations in poultry returns. A large part of the variations in egg prices from farm to farm,



however, can often be explained in terms of management.

Poultrymen generally attribute success or failure to various factors of management. An analysis of a number of these factors is one of the main features of this study.

# FACTORS AFFECTING POULTRY LABOUR RETURNS

## Rate of Production

The management factor most commonly associated with success in the poultry business is rate of production. In egg laying contests and in poultry studies this is usually expressed in terms of eggs per layer per year. Because of its more common use by poultrymen in the study, rate of production was measured by "per cent lay". Another reason for using this measure was the fact that many of the layers were kept for a period of less than a year.

Table 6.- Relation of Per Cent Lay to Returns - 118 Poultry Flocks, Nova Scotia, 1947-48

	:	:	:	:	:
	:	:	:	:	:
Per cent lay	:	:	:	:	:
Range	Average	Flocks	Layers	returns	per hour
:	:	:	:	:	:
- per cent -		- number -		- dollars -	
Less than 52	46.2	38	521	1,041	.67
52-61	55.7	43	451	1,313	.86
More than 61	67.4	37	652	2,796	1.84
Total or average	57.2	118	537	1,690	1.10

A summary of poultry labour returns and returns per hour of labour for flocks having low, medium and high rates of production is presented in Table 6. As might be expected, increases in per cent lay were associated with higher returns. Flocks with a high rate of lay were somewhat larger than those of the other groups.

Following the analysis of the data an individual report on the year's business was returned to each poultryman taking part in the study. There was a general tendency for poultrymen

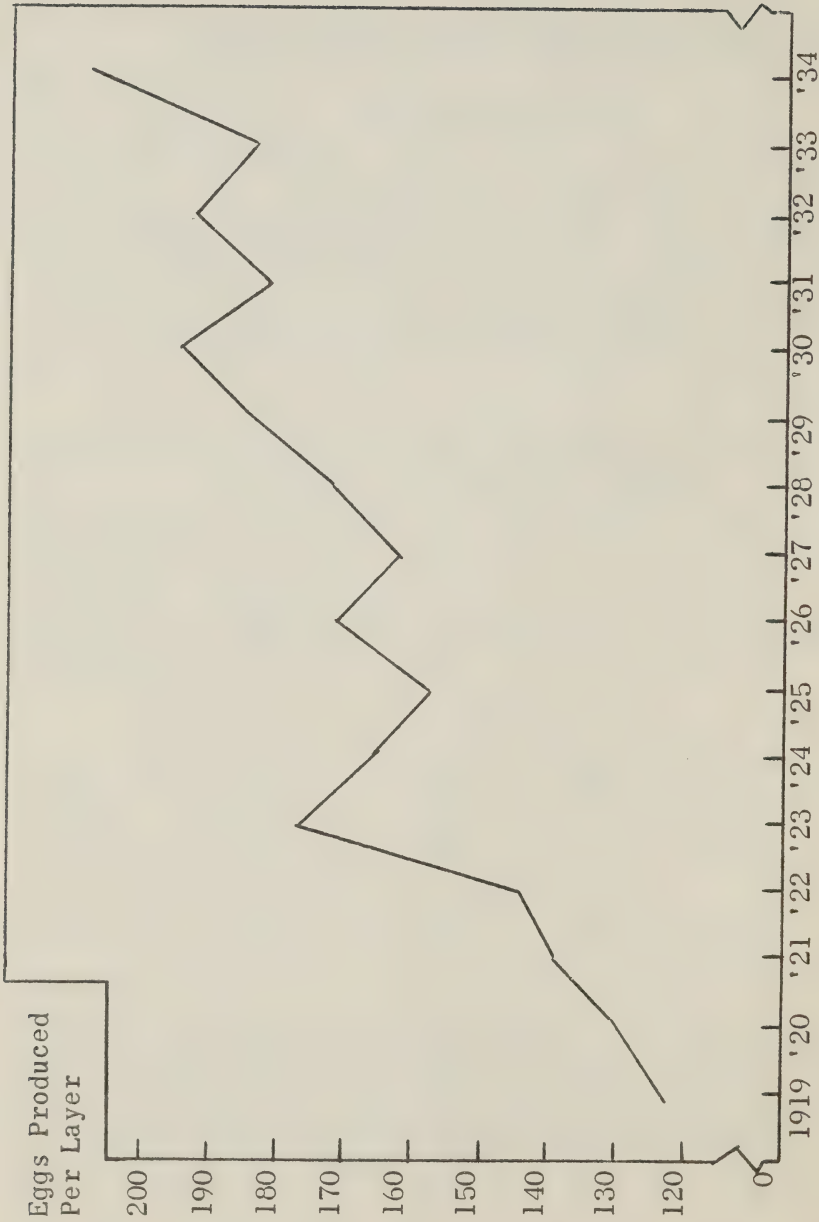


Figure 1.- Annual Production per Layer, Egg Laying Contests, Dominion Experimental Farm, Nappan, Nova Scotia, 1919-34.

During the 16-year period in which the contests were conducted annual production per layer rose from 121 to 203 eggs, an increase of 82 eggs per layer.

to overestimate annual rates of production. While most of the poultrymen kept a close check on production throughout the year, few of them followed the practice of totalling their records at the close of the year and calculating the flock per cent lay on an annual basis. Quite a number noted that the annual rate of lay for their flocks was somewhat lower than their estimates.

Overestimating no doubt arises from a better memory of the periods of peak than of those of low production. In any event, this emphasizes the importance of using annual calculations rather than general estimates in planning the year's business. The desirability of thinking in terms of annual rate of production was also emphasized by the comments of a number of operators who stated that their chief problem was not in "pushing" their birds to a high rate of lay, but rather in holding the flock at a reasonably high rate of sustained production.

Variations in rate of lay are commonly attributed to a wide variety of causes. Some of these causes will be discussed in the sub-sections on breed, buildings, equipment and feeding practices.

An upward trend in production per layer has taken place in Nova Scotia during the past 25 years. Reports on the egg laying contests conducted at the Dominion Experimental Farm, Nappan, Nova Scotia, from 1919 to 1934 indicate an upward trend in average rate of production ranging from a low of 122 eggs per bird per year in 1919 to a high of 203 eggs in 1935. This remarkable increase gives some indication of the importance attached to rate of production.

### Size of Business

How many layers should a poultryman keep? This was one of the questions frequently raised by many of the more successful poultrymen in the study. Some of these men had increased their flocks considerably in the past few years and were keenly interested in relationships of size of flock to returns.

For the 118 flocks included in the study a marked increase in poultry labour returns and in returns per hour was associated with an increase in size of flock. Perhaps the best way of demonstrating the influence of size of flock on returns is by comparing the small and medium size flock groups. Flocks with 264 to 580 layers were three per cent lower in per cent lay than flocks with less than 264 layers, but their labour returns per hour were 10 cents higher than for the smaller flocks. When size of flock exceeded 580 layers there was a substantial increase



in returns. Part of this, however, was accounted for by a slight increase in per cent lay.

Table 7.- Relation of Number of Layers to Various Factors -  
118 Poultry Flocks, Nova Scotia, 1947-48

		:	:	:	:	Poultry
		:	:	:	:	labour
Layers		:	:	Per cent	labour	returns
Range	Average:	Flocks	:	lay	returns	per hour
		:	:	:	:	:
- number -			- per cent -		- dollars -	
Less than 264	189	39	56.6	558	.68	
264-580	397	40	53.6	1,104	.78	
More than 580	1,030	39	58.8	3,424	1.44	
Total or average	537	118	57.2	1,690	1.10	

In this study "number of layers" or "average layers" represents the average number of layers kept during the year. Its calculation results in a lower figure than "layers housed". The latter figure pertains to the number of layers on hand at October, 1, 1947 whereas the former takes account of sales, mortality and additions to the flock.

In discussing flock size a number of points were emphasized by various poultrymen. Perhaps the comment most frequently made was that the flock should be large enough to make it a worthwhile enterprise. A considerable number felt that the small farmyard flock was more of a nuisance than an asset. They stated that they would like a few hundred layers or none at all. Another point noted was that increasing the flock size did not greatly increase the amount of labour required. A number of those who had increased their flocks in recent years remarked that as far as most poultry chores were concerned it was about as easy to look after two to three hundred birds as it was to look after one hundred.

Forty-six of the 118 poultrymen planned to increase the size of their flocks. A frequent comment of these operators was that they were currently able to make a small annual profit of a few dollars on each layer kept. They hoped to increase their returns by having more layers and thus more volume so as to multiply this margin of profit. Others felt that rising feed costs would reduce their margin of profit per bird, and

that the only way to maintain present returns was to increase the number of birds kept.

It may be argued that during unfavourable years size of business may operate to the poultryman's disadvantage. When volume is multiplied by a net loss per bird rather than a profit, the larger business may be wiped out whereas the smaller enterprise may be carried on until conditions improve. In commenting on this, some of the older operators noted that the poultry business tends to adjust itself relatively quickly. For many farmers the poultry flock is an "in again - out again" proposition. In times of adversity these fringe producers quickly dispose of their flocks, thus considerably reducing the supply of eggs coming to market and causing prices to rise. Something of this nature occurred in 1947-48. Concern over rising feed prices caused many poultrymen to dispose of their birds late in 1947 and there was also a decrease in the number of chicks hatched in the spring of 1948. As a result egg production decreased sharply and prices during 1948 rose approximately 20 per cent.

### Labour Efficiency

How many layers can a worker look after? This was another topic of interest to poultrymen and one on which there was a wide variation of opinions. Since most of the flocks required less than one man's full time, efficiency in the use of labour was measured in terms of the number of minutes required per day to care for 100 layers rather than by the number of birds cared for per man per day.

Poultrymen spent an average of 26 minutes per day in routine chores in caring for 100 layers. This included time spent in feeding and watering, and gathering, cleaning and packing eggs. Time spent on these major poultry chores was used as a basis for comparing labour efficiency from farm to farm.

As indicated in Table 8 there was considerable variation in time spent on poultry chores. The most efficient group were able to look after their flocks in one-third of the average time required by the least efficient group. Time spent in caring for the flock appeared to be closely related to labour returns, although other factors were involved.

Table 8.- Relation of Minutes of Labour on Major Chores per 100 Layers per Day to Various Factors, 118 Poultry Flocks, Nova Scotia, 1947-48

		:	:	:	:	:	:Poultry
Labour per 100		:	:	:	:	:	:Poultry:labour
layers per day		:	:	:	Per cent:	labour	:returns
Range	Average	:Flocks	: Layers	:	lay	:returns:	per hour
		:	:	:	:	:	:
- minutes -		- number -		- per cent -		- dollars -	
Less than 23	16	36	804	58.8	2,707	1.71	
23-33	29	44	525	58.0	1,710	1.11	
More than 33	49	48	297	51.6	705	0.47	
Total or average	26	118	537	57.2	1,690	1.10	

The group of poultrymen who spent the least time per 100 layers in caring for their flocks also secured a higher per cent lay than did those who were less efficient in the use of labour. One would not expect any relationship between labour efficiency and rate of production were it not for the fact that those who are most efficient in one phase of management tend to be above average in others. On the other hand, it might be expected that those who spent most time on their birds would secure the highest per cent lay. In discussing this point a number of poultrymen expressed the opinion that many operators put a great deal of labour on their flocks but this labour is poorly planned and ineffective. Success in the poultry business requires a high level of management with constant attention to many small details. "It is the little extras which pay off." At the same time there is often a tendency to spend a good deal of time "fussing around" with the birds, with very little, if any, additional returns being secured. As one poultryman expressed it, "There are some people who will stay up half the night to squeeze one extra egg out of their flock". When such extra time is charged against the poultry business, the return per hour is likely to be quite low. In view of the strong influence of number of layers on returns it is probable that in most cases such extra time could be spent more profitably in caring for extra layers. In any event, a number of poultrymen were able to secure a relatively high rate of lay with a very moderate amount of labour on the flock.





**Figure 2.- Large and Conveniently  
Arranged Pens Save Labour.**



**Figure 3.- Dark  
Roomy Nests with  
Plenty of dry  
Clean Litter  
Reduce Egg Clean-  
ing Time.**

Generally speaking, the poultrymen requiring the least time per 100 layers had relatively large flocks and large pens, with convenient arrangements for doing chores. The most efficient group averaged 804 layers as compared with 297 for the least efficient group (Table 8). Many of the operations involved in looking after poultry, such as feeding and gathering eggs, often require approximately the same number of trips for the small as for the larger flock.

The increase in pen size in recent years has helped greatly in reducing labour on the flock. Many of the poultry houses constructed some 20 years ago were divided into a number of individual pens, each of which required a separate trip for feeding, watering and gathering eggs. In a number of cases chore time has been reduced to a fraction by knocking down the partitions and alleyways and converting the whole floor into one large pen. With the location of the nests and waterers near the door, the hen rather than the poultryman does much of the walking, thus greatly reducing time and travel. Such an enlarged pen has greater capacity, and in the opinion of a number of the poultrymen the litter keeps dry for a longer period due to improved circulation of air. This in turn is reflected in less time spent in cleaning out pens or turning over litter, as well as in cleaning eggs. The trend toward increased size of pen is very evident in the newer constructed poultry houses, a number of which have pens housing over 1,500 layers.

Table 9.- Relation of Minutes of Labour on Major Chores per 100 Layers per day to Various Factors, 118 Poultry Flocks, Nova Scotia, 1947-48

Labour per 100 :		: Layers :		Running :	Lay
Layers per day :		Average :		housed :	flock
Range	Average	pen size	per pen	in pens	mortality
:		:		:	:
- minutes -	- sq.ft. -	- number -	-	- per cent -	
Less than 23	16	755	267	71	6.9
23-33	29	655	204	36	8.0
More than 33	49	414	111	29	10.7
Total or average	26	616	197	45	8.0

Two arguments in support of the use of small pens are that they tend to increase production per bird and reduce mortality. Experience of poultrymen in the study did not support either of these claims. The poultrymen who required less than 23 minutes per day to care for 100 layers had pens almost twice as large as the least efficient group and housed over twice as many layers per pen. (Table 9) They secured higher per cent lay and had lower mortality than those using the smaller pens.

Poultrymen who required the most time to care for their flocks usually had to contend with a number of factors which involved extensive time and travel. One common feature on such farms was the housing of the flock in a number of small buildings scattered about the yard and at some distance from the feed and water supply. In some cases this inconvenience was further aggravated by the division of the buildings into small pens. On some farms the layout of feeders, waterers and nests was such that considerable movement was necessary in each pen. While many of these and other inconvenient arrangements did not individually appear to be particularly serious, their combined effect meant many additional miles of walking and hours of labour during the year.

In addition to their larger and more conveniently arranged pens, the more efficient poultrymen made greater use of labour-saving devices and equipment such as running water, community nests, dropping pits and deep litter. A number of the larger operators also had special equipment such as elevators or hoists, cleaning chutes, and special feed carriers, etc. The use of labour-saving devices and equipment has a very definite bearing on the number of layers one man is able to care for in a day. The average poultryman who waters his flock by hand, for example, carries approximately eight tons of water per 100 layers per year. If the water supply is located some distance from the pens, this can add up to many miles of walking in the year.

Most of the more efficient poultrymen used deep litter or at least a modified version of it. In one case, a small tractor equipped with a blade was used to push the litter to the loading chutes or windows at annual cleanout time. On two farms the litter was cleaned out only every second year.

Poultrymen included in the study spent approximately one-third of their daily chore time in cleaning and packing eggs. A number of operators noted that on some occasions time spent in cleaning dirty eggs amounted to as much as 50



per cent of daily chore time. A number of poultrymen had given this matter considerable attention, particularly in connection with nest and litter management and ventilation. Probably the suggestion most frequently made by those who had a relatively low percentage of dirty eggs was that deep litter should be built up during late summer and well established before cold weather sets in. In discussing this point one of the poultrymen who cleaned out his litter only on alternate years noted that the second year litter was much easier to keep dry than that of the first year. Some favoured the use of lime or various litter mixtures, and special arrangements to reduce dampness around the waterers. Others emphasized the need of better nest management or more frequent gathering of eggs. A considerable number of the operators favoured community nests which reduce considerably the amount of time and travel required in gathering eggs. Others, however, indicated that they had stopped using community nests due to what was considered excessive breakage. The poultryman who had the lowest percentage of dirty eggs attributed this to the long narrow tunnel type nest which he was using. While there was considerable difference of opinion as to the best type of nest, poultrymen were generally agreed that time taken in keeping nests in good order saved considerable labour in cleaning eggs.

### Mortality

How serious a problem is mortality? While losses in the flock due to disease and other causes can be a very serious matter, the overall influence of mortality on returns of flocks did not appear to be of major importance at least not when compared to that of the three factors previously discussed. As lay flock mortality increased poultry returns decreased. It is probable, however, that the lower returns associated with increased mortality (Table 10) are in considerable measure due to low per cent lay and smaller size of flock, as well as mortality.

Leucosis and blue comb were most frequently listed as the causes of losses in the laying flocks. In many cases, however, poultrymen did not attribute their losses to any one special cause. Coccidiosis was listed as the chief cause of losses in brooding flocks, while foxes, and raccoons and crows caused most losses in the range flocks. The low price of long-haired furs has permitted a considerable increase in fox numbers in the province in recent years. In one area where the situation was quite serious, a number of poultrymen had created a fund for the payment of a

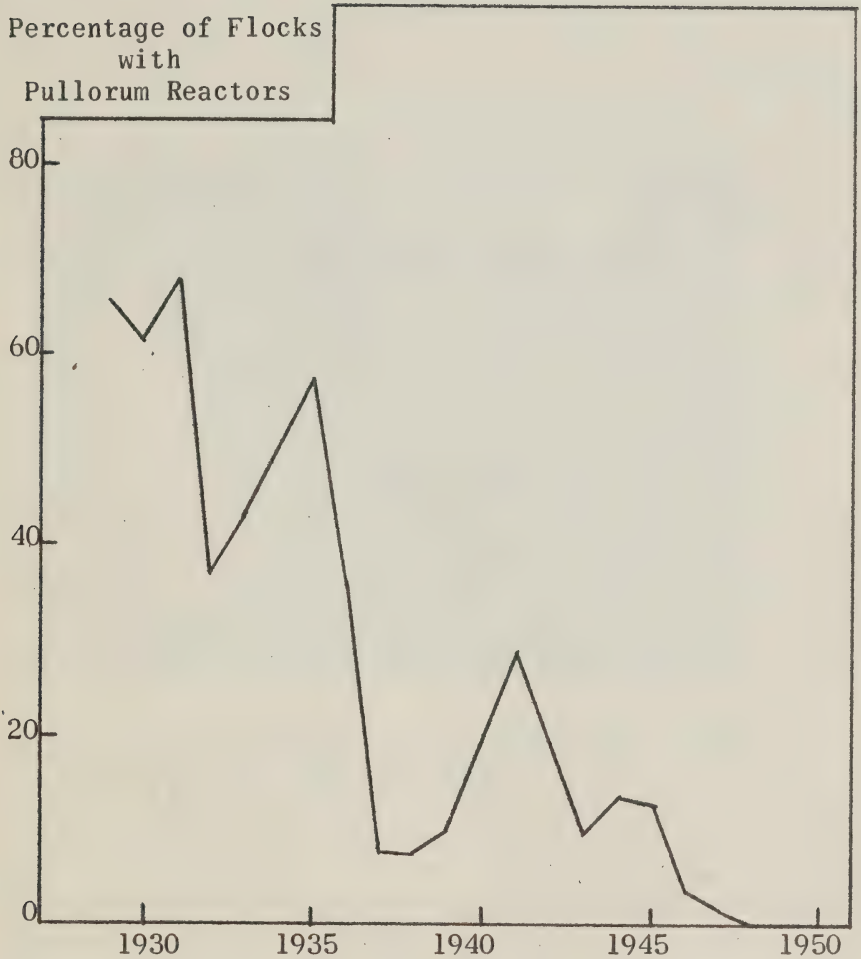


Figure 4.- Incidence of Pullorum in Nova Scotia Approved Flock Program, 1929-49

In 1929 Pullorum reactors were found in over 60 per cent of flocks in the approval program. By 1948 the percentage had fallen to zero.

special bounty on foxes killed in the district. A few cases of theft were also reported.

Table 10. Relation of Lay Flock Mortality to Various Factors - 118 Poultry Flocks, Nova Scotia, 1947-48

					Daily:		Poultry
					Per: labour:		labour
Mortality				cent:	per 100:	labour	returns
Range	Average:	Flocks:	Layers:	lay:	layers:	returns:	per hour
- per cent -	- number -	- % -	minutes-	- dollars -			
Less than 4.7	3.5	38	599	59.2	25	2,178	1.34
4.7-8.9	8.5	42	532	59.2	27	1,628	1.16
More than 8.9	15.4	38	479	52.2	26	1,272	0.80
Total or average	8.0	118	537	57.2	26	1,690	1.10

It is sometimes stated that mortality tends to be heavier in high producing flocks. The data in Table 10 seems to indicate the reverse with a low mortality rate being associated with a high rate of lay. The smaller flocks tended to have somewhat heavier mortality than the larger ones. This is also somewhat at variance with the general opinion that mortality is heavier in larger flocks.

One point to be noted with reference to mortality is that more factors are involved than the type of care which the flock receives and the innate qualities of "livability" of that flock. One reason why mortality is generally lower in the better managed flocks is that culling is practised much more rigorously. "Off color" birds as well as "boarders" are removed whenever they are observed. It was not possible in the study to establish any relationship between methods of culling, mortality and per cent lay since by far the bulk of the poultrymen indicated that they did not follow any special procedure but were more or less constantly on the lookout for birds which should be removed from the flock. As one poultryman commented in explaining the low mortality for his flock, "I generally get them before they die."

One point emphasized by poultrymen was the substantial decline of mortality rates in recent years. This was attributed mainly to the extensive use of cross-bred birds and the vigorous disease control program which has been carried on in



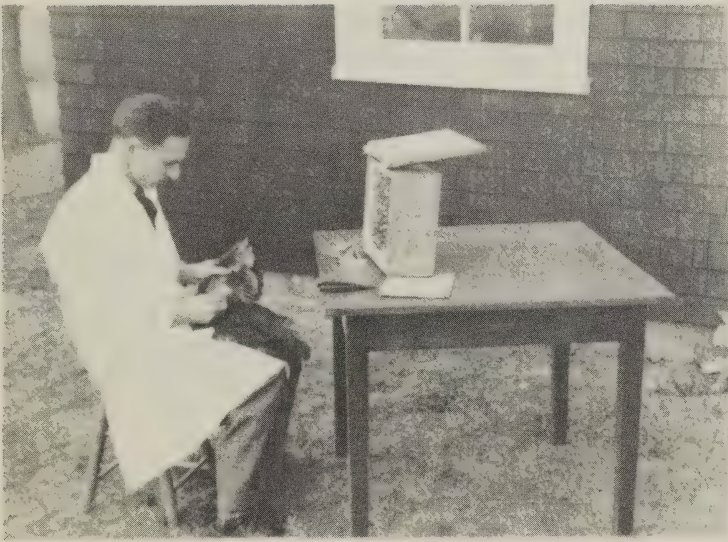


Figure 5.- Blood testing has played an important part in the reduction of disease in Nova Scotia poultry flocks.

the province for a number of years. Some extent of the effectiveness of this program is indicated by the eradication of pullorum from approved flocks, not a single reactor being detected in 1948. For the 118 farms studied annual flock losses average eight per cent, while brooding and range flock losses amounted to ten per cent. A comparison of the data with those of comparable studies conducted elsewhere indicates the low rate of mortality to be one of the most significant features of the Nova Scotia flocks.

Declining mortality has probably had an indirect bearing on such factors as size of flock and efficiency in use of labour, as well as bringing increased stability to the industry. The fear of disease tended to keep the size of flock down and was no doubt responsible for the segregation of birds in small pens as well as for a number of other practices which greatly increased chore time and travel.

Besides giving added encouragement to the use of labour-saving devices, the low incidence of disease in the province has helped to hold down production costs in a number of ways. None of the 118 poultrymen vaccinated their birds, and except for a few cases where special measures were used to combat coccidiosis the amount spent for medicines and disinfectants was quite small.

### Egg Prices

Price is a matter which probably receives more attention from the poultryman than many other agricultural producers. Since he markets his products frequently throughout the year he is constantly concerned with the day to day fluctuations, as well as the general patterns of prices. Where a high percentage of purchased feed is used there tends to be added interest in price since the cost-price margin is more sharply defined.

About 70 per cent of the poultrymen sold practically all of their eggs on a wholesale basis. The variation in egg price within this group was relatively small. There was considerably more variation in prices received by the other poultrymen who sold part of their eggs through retail outlets or hatcheries.

An increase in egg prices was associated with higher returns. It might be expected however, that the variation in prices indicated in Table 11 would be associated with greater variation in poultry labour returns per hour. One point to be noted in this regard is that the higher egg prices received by some of the poultrymen did not represent a net

Table 11.- Relation of Egg Prices to Various Factors,  
118 Poultry Flocks, Nova Scotia, 1947-48

						Poultry
						labour
Price per dozen				Per cent	labour	returns
Range	Average	Flocks	Layers	lay	returns	per hour
- cents -		- number -		- % -		- dollars -
Less than 40.8	39.5	39	508	58.1	1,294	0.90
40.8-43.8	41.9	41	454	60.7	1,406	1.15
More than 43.8	49.0	38	655	53.9	2,405	1.21
Total or average	43.8	118	537	57.2	1,690	1.10

advantage since in many cases additional expenses on labour were involved for such items as grading, packaging and delivery. The group which received the highest egg prices also had the lowest per cent lay. One reason for this is that a number of these poultrymen required a year round supply of eggs and kept their layers for a longer period of time.

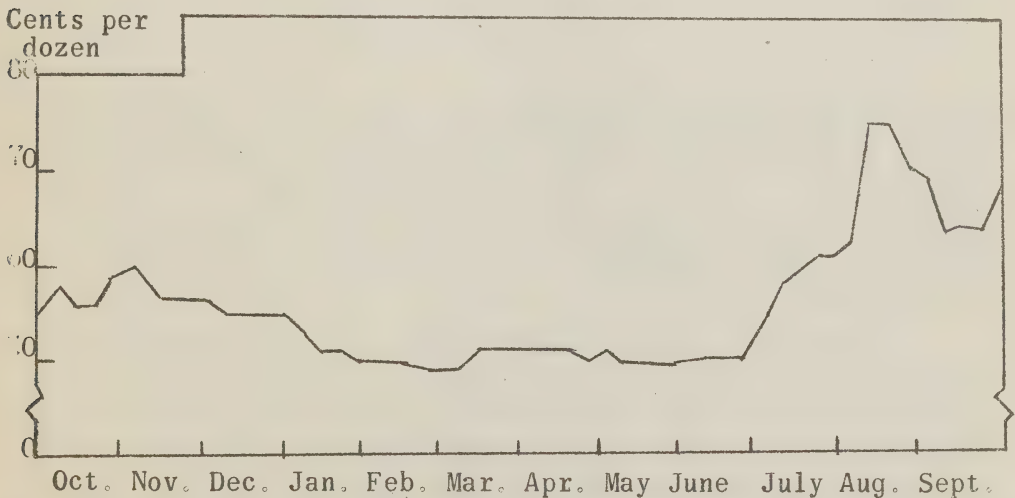


Figure 6.- Prices to Retailers of A Large Eggs at Halifax,  
Nova Scotia, 1947-1948.

Source: Egg and Poultry Market Report, Department of Agriculture,  
Ottawa.



Hatch Date.- Emphasis is often placed on the desirability of purchasing early chicks and thus being able to sell a high proportion of eggs during the top price period in the year. Poultrymen purchased their chicks from January to May with March 22 being the average hatch date. On the basis of tabular analysis, a one month advance in hatch date was associated with an increase of approximately one cent per dozen in the average price of eggs for the year.

Table 12.- Relation of Hatch Date to Returns, 118 Poultry Flocks, Nova Scotia, 1947-48

		:	:	:	Price:	:	Poultry
		:	:	:	per	:	Poultry: labour
Hatch date		:	:	:	dozen:	labour	returns
Range	Average:	Flocks:	Layers:	eggs:	returns:	per	hour
		:	:	:	:	:	:
- date -	- number -	-	¢ -	-	dollars -		
Before 14 March	20 Feb.	39	712	44.5	2,342	1.20	
14 Mar. to 1 April	24 Mar.	44	501	43.5	1,392	1.09	
After 1 April	18 Apr.	35	386	42.7	1,340	0.95	
Total or average	22 Mar.	118	537	43.8	1,690	1.10	

The data in Table 12 indicate that poultrymen who purchased early chicks received a higher price for their eggs and had higher poultry returns than those who bought their chicks at a later date. In view of the probable influence of size of flock it does not appear that a great deal of the variation in poultry returns indicated in Table 12 can be attributed to differences in hatch date.

In discussing hatch date a number of poultrymen noted that there is a tendency to emphasize the higher egg prices associated with early hatched chicks and to overlook some of the cost factors involved. Increased expense for such items as fuel and housing is incurred for chicks hatched at a very early date and as these chicks spend a relatively brief period on range they are not able to make much use of this cheap source of feed. While early hatched flocks were generally more profitable than those hatched at a later date the data also seem to indicate that the relationship of hatch date to poultry returns is not as simple as is sometimes assumed, with various factors in addition to higher egg prices being involved

Figure 7.- Four-Month Periods of Highest Prices - Grade "A"  
Large Eggs - Halifax, Nova Scotia, 1929-49 a/

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
1929-30										
1930-31										
1931-32										
1932-33										
1933-34										
1934-35										
1935-36										
1936-37										
1937-38										
1938-39										
1939-40										
1940-41										
1941-42										
1942-43										
1943-44										
1944-45										
1945-46										
1946-47										
1947-48										
1948-49										
1949-50										

a/ Based on mid-month quotations, Egg and Poultry Market Report, Canada Department of Agriculture, Ottawa.

Seasonal Price Movements.- The constant efforts of poultrymen to market a high percentage of their eggs during the high price period of the year has had a noticeable influence on movements of egg prices. Each year as a larger volume of chicks are hatched at an earlier date the period of high egg prices advances slightly. The extent of this movement is shown in Figure 7.

From 1929 to 1949 the four-month period of highest egg prices moved earlier by approximately one month in every seven years. The one exception to this earlier movement occurred in 1933-34 when prices in February, 1934 were higher than in October, 1933. It may be recalled that in February, 1934, a number of all-time lows in temperature were recorded and that during the latter part of the month there were some

very severe storms which greatly interfered with the movement of eggs to market.

How long is the earlier movement in egg prices likely to continue? Presumably, as long as poultrymen continue to buy their chicks earlier each year. There is, of course, the possibility that the movement may be stabilized if a sufficient number of poultrymen decide to take advantage of the high price period by holding over late hatched pullets. It appears, however, that poultrymen will tend to buy their chicks earlier each year as long as there is a sufficient variation in egg prices to encourage them to do so. One point which should be noted in this regard is that there appears to be a downward trend in the variation in annual egg prices during recent years.

Table 13.- Variation in Seasonal Fluctuations in the Price of Eggs - Halifax, 1929-49 a/

Year	Average price-two high months	Average price-two low months	Net variation	Per cent which variation was of price in two low months
	- cents -	- cents -		- per cent -
1929	69	32	37	116
1930	70	33	37	112
1931	55	25	30	120
1932	50	19	31	163
1933	45	18	27	150
1934	49	22	27	123
1935	46	22	24	109
1936	45	23	22	96
1937	47	24	21	88
1938	44	26	18	69
1939	46	24	22	92
1940	46	26	20	77
1941	51	26	25	96
1942	51	34	17	50
1943	53	39	14	36
1944	50	39	11	28
1945	53	39	14	36
1946	53	40	13	32
1947	57	42	15	36
1948	75	50	25	50
1949	75	52	23	44

a/ Data based on mid-month quotations Egg and Poultry Market Report, Department of Agriculture, Ottawa.



Table 13 was constructed to show the extent of seasonal variations in egg prices. The averaged quotations of the two months in which prices were highest are compared with the average of the two low price months in the same year. Variation in prices between the high and low price months shows a downward trend ranging from a high of 37 cents in 1929 and 1930, to a low of 11 cents in 1944. Variations between high and low price periods increased somewhat after 1945. Those in 1948 and 1949 were probably influenced to some extent by disruptions within the industry, associated with rapidly rising prices following discontinuation of subsidy payments on feed wheat and coarse grains in 1947.

It is probable that wartime controls exerted a considerable influence on annual fluctuations of egg prices and account for some of the downward trend indicated in Table 13. It would appear, however, that such factors as increased efficiency in production, improved processing, storage and marketing facilities, as well as efforts of producers to market an increasing percentage of their eggs in the high price period of the year, have tended to decrease annual fluctuations in egg prices. Should this trend continue it seems probable that it will have a bearing on the date on which chicks are bought, and possibly on the relative emphasis placed on cost of raising replacements, as a factor in determining time of purchase.

### Breed

What is the best breed of poultry? All but two of the poultrymen included in the study expressed a definite preference for a specific breed of poultry, although a few indicated that they did not feel very strongly in the matter. The various breeds kept and the poultrymen's breed preferences are shown in Table 14. On a few farms more than one breed was kept. In such cases the breed with the largest number of birds in the flock was that used in preparing the table.

Approximately 80 per cent of the poultrymen preferred cross-bred birds, the most popular type being the Rhode Island Red x Light Sussex cross. The major reasons given for this preference were the hardiness and low mortality of these birds, combined with good egg-laying ability. A number of poultrymen also expressed the opinion that such birds could be kept at a reasonably high rate of lay with less attention than was the case with other breeds. The chief criticism of the cross breeds was that they were some-

what more susceptible to broodiness than pure-bred birds.

Table 14.- Breeds of Poultry Kept and Operators' Breed Preference, 118 Poultry Flocks, Nova Scotia, 1947-48

Breed	: Number : keeping : breed	: Number : preferring : breed
	:	:
Rhode Island Red x Light Sussex	60	66
Light Sussex x Rhode Island Red	6	4
Light Sussex x New Hampshire Red	12	6
New Hampshire Red x Light Sussex	10	12
Barred Plymouth Rock x New Hampshire Red	3	1
New Hampshire Red x Barred Plymouth Rock	2	1
Barred Plymouth Rock x Rhode Island Red	-	1
Total Cross Breeds	93	91
Light Sussex	9	5
Barred Plymouth Rock	5	7
New Hampshire Red	5	3
White Leghorn	4	8
Rhode Island Red	1	1
White Wyandotte	1	1
Total Pure Breeds	25	25
No Breed Preference		2
Total All Breeds	118	118

Considerably more poultrymen preferred the Rhode Island or New Hampshire Red x Light Sussex crosses than the reverse combinations. The Red x Light Sussex cross results in a red pullet and a white cockerel. The chief reasons given for preference of this cross were that the red pullets were slightly better layers, were less subject to cannibalism due to the red feathering, and were completely free of cockerels when bought as sexed pullets. In some cases such birds were also slightly cheaper as baby chicks than the white birds resulting from the reverse cross. Poultrymen expressing a preference for the Light Sussex x Red cross generally stated that they found this bird equally good as a layer and somewhat better than the other cross as a meat bird. While the Light Sussex x Red cross is not colour-sex linked,

some hatcherymen stated that the increased production of the parent Rhode Island Red over the Light Sussex hen, more than covered the additional expense of sexing.

### Buildings and Equipment

How much money can a farmer invest economically in poultry buildings and equipment? Generally speaking, there appear to be two schools of thought on the matter. Because of the somewhat hazardous nature of the poultry business a recommendation quite often advanced is that such investment be kept to "as little as you can get by with". While some of the poultrymen in the study expressed this opinion, the majority were generally in agreement that expense for such items as insulation, ventilation, and labour-saving devices was more than covered by increased returns.

Table 15.- Relation of Investment in Buildings and Equipment Per Layer Housed to Various Factors, 118 Poultry Flocks, Nova Scotia, 1947-48

Investment per layer housed:			Floor space per layer:	Lay Per cent lay	Lay flock mortality	Poultry labour costs	Poultry returns per hour
Range	Average	Flocks	housed	lay	lity	ret	ns
- dollars -	- No. -	- sq.ft. -	- per cent -	- dollars -			
Less than 1.84	1.19	39	2.7	55.1	8.4	1,268	0.81
1.84-2.74	2.39	40	3.1	56.1	8.8	1,816	1.24
More than 2.74	4.01	39	3.5	60.2	6.9	1,984	1.25
Total or average	2.52	118	3.1	57.2	8.0	1,690	1.10

The data in Table 15 indicate generally that increased investment per layer in poultry buildings and equipment was associated with higher per cent lay, lower mortality and increased poultry returns. The optimum investment per layer for buildings and equipment would appear to be somewhere between \$2.39 and \$4.01 for the flocks studied.

Investment in poultry buildings and equipment is often expressed on a per bird basis as was done in Table 15. Such a measure is quite satisfactory for purposes of comparison



as long as the layers are housed on a comparable basis such as at the generally recommended rate of four square feet per bird. During recent years there has been a tendency to "crowd" the birds somewhat closer than this. This has probably been brought about in part by increased housing costs, through the use of larger pens, and, as one poultryman noted, by the fact that he appeared to be able "to get away with it". It will be noted that part of the variation in investment per layer in Table 15 was due to differences in floor space allowance per bird. In the low investment group this averaged only 2.7 square feet per layer as compared with 3.1 and 3.5 square feet in the middle and high investment per layer groups. Investment in buildings and equipment averaged \$0.44, \$0.81 and \$1.14 per square foot of lay house floor space for the low, middle and high investment groups in the table.

In discussing the allowance of floor space per layer a number of poultrymen noted that crowding their birds involved risk of heavier mortality. They felt, however, that the increased volume of business resulting from the larger number of layers more than made up for such losses. A number of others stated that crowding their birds resulted in some additional time being spent in turning over litter and in cleaning dirty eggs, but noted that during late summer and early fall it was a relatively easy matter to keep the litter dry. As the season progressed, culling and mortality increased floor space area per layer. A number of poultrymen stated they had housed somewhat larger flocks of layers in the fall of 1947 than was normally the case. Most of these operators had on hand a number of surplus pullets which they had been unable to dispose of due to the unfavourable outlook for poultry which developed during the latter part of the year.

Another point which should be noted with reference to Table 15 is that in some cases the actual or estimated investment in poultry buildings may not reflect too accurately the quality of such equipment. A considerable number of the flocks in the study were not housed in buildings originally built for this purpose but rather in old barns and other buildings which had been converted into quite satisfactory poultry houses at relatively little expense. In a number of cases one of the mows or ends of the dairy barn had been converted into two or three, or even four deck poultry houses. The investment per layer in such cases was normally lower than on farms where the flock was housed in the more conventional type of poultry building.

Types of Converted Buildings Used  
for the Commercial Lay Flock



Figure 8.- An old mill converted into a three deck laying house.

Figure 9.- Dairy barn converted for poultry. Note litter disposal chutes, also track at end of building for hauling in feed and litter.



Figure 10.- Barn partially converted for poultry. The top half was made over to a two deck laying house.

Operators generally favoured insulation of poultry houses. A number, however, questioned the value of insulation, except in houses where running water was installed. Poultrymen were practically unanimous on the need for improved ventilation, but differed widely in their opinions as to the most efficient system. One opinion frequently expressed was that ventilation was an individual problem for each poultry house, and that a system which worked well in one house might not be satisfactory in another. Considerable experimentation was often necessary in developing the system best adapted to any one house or pen. A number of others noted that the operation of, as well as the type of ventilation system, had an important bearing on controlling dampness.

All but 15 of the poultrymen in the study used electric lights. On nine farms electric power was not available. A few of those using lights in their laying house stated they were not fully convinced that the expense was justified. A few poultrymen used lights both night and morning, but by far the more common arrangement was the use of lights only in the morning. A considerable number of houses were equipped with automatic time clocks which turned the lights on and off as desired. A number of others used a home made switch operated by an alarm clock. Reasons given for using lights only in the morning were that it avoided the extra work and expense involved with dimmers, and that it seemed preferable to have the birds feeding and moving about rather than on the roosts during the early morning when temperatures are usually lowest.

### Feeding Practices

Feeding practices were relatively uniform. All flocks were fed commercial laying mash. On a few farms some home grown grain was fed, but in all cases the major part of the scratch feed was purchased.

It will be noted in Table 16 that the 120 pounds of mash and scratch fed per layer is somewhat higher than the old rule of thumb of 100 lbs. of feed per layer per year. Part of this difference in rate of feed consumption is probably accounted for by increased rates of production. Another factor influencing increased feed consumption per layer was the fact that most of the flocks were disposed of in the spring and were not carried through the molting period.



Table 16.- Annual Feed Consumption and Cost per Average Layer, 118 Poultry Flocks, Nova Scotia, 1947-48

Item	Feed per layer	
	- pounds -	- dollars -
Laying mash	68	2.67
Scratch	52	1.55
Grit and shell	4	.07
Other	-	.01
Total		4.30

One practice to which many of the poultrymen attached considerable significance was the relative amounts of mash and scratch fed to the laying flock. Most of the poultrymen fed a relatively fixed proportion of mash to scratch throughout the year. A considerable number, however, varied the proportion from time to time depending on the rate of lay. The general rule in such cases was to increase the proportion of grain fed as the birds reached a high rate of lay. In a few cases this procedure was reversed. A number of poultrymen indicated that in recent years they had substantially increased the amount of oats which they were feeding as scratch grain.

Table 17.- Relation of "Mash to Scratch Ratio" to Various Factors, 118 Poultry Flocks, Nova Scotia, 1947-48

Mash as percentage	:	:	:	:	:	Poultry
of total	:	:	:	Per	:	Poultry
grain ration	:	:	:	cent	:	labour
Range	Average	Flocks	Layers	lay	returns	per hour
- per cent -	- number -	- % -	-	-	-	-
Less than 51	48.0	44	404	52.7	906	0.64
51-60	56.8	42	642	60.9	2,318	1.48
More than 60	68.3	32	581	56.3	1,946	1.15
Total or average	56.6	118	537	57.2	1,690	1.10

The data in Table 17 indicate that the practice of feeding from 51 to 60 per cent mash was associated with higher per

cent lay and increased poultry returns. It should be noted, however, that some of the poultrymen who were feeding in excess of 60 per cent mash were securing very good results. As the amount of mash fell below 50 per cent rate of production decreased quite sharply.

All but five of the poultrymen fed mash every day, the general principle being to feed only an amount that could be cleaned up in a day. On 25 farms mash was fed two or three times per day. In most cases scratch was fed only once per day. Twenty-eight of the poultrymen fed wet mash. Most of these operators did not mix up a wet mash but merely poured some warm water or skim-milk into the dry mash troughs. Some operators stated that they were getting quite satisfactory production without the use of wet mash and felt the additional work involved in preparing and feeding it was only justified where layers had suffered a serious slump in production.

Feed costs for the replacement flocks averaged \$1.31 per bird raised. Of this \$1.30 was for purchased feed and \$.01 for range. It was not possible to secure complete data on the amount of feed fed to the replacement flocks, but on the basis of current prices this would amount to approximately 35 pounds of feed per bird raised. The young flocks consisted largely of pullets with cockerels representing only nine per cent of all birds raised.

#### Percentage of Pullets in Flock

Does it pay to keep pullets a second year? Thirty of the farms in the study had some yearling pullets on hand on October 1, 1947. In a number of cases, however, these were disposed of within the next few months. Because of the small number of birds kept over as layers and the difficulties involved in securing separate data, it was not felt worthwhile to make a special analysis of the relative returns from hens and pullets.

Poultrymen were generally in agreement that it was more profitable to replace the laying flock each year than to hold yearling pullets. This opinion appeared to be supported by the experience of the 30 poultrymen keeping some hens in their laying flocks. All but 26 of these operators had below average per cent lay and all but 23 were below average in poultry labour returns per hour. The percentage of hens and pullets housed as of October 1, 1946 to 1948 is shown in Table 18. As indicated above, the relative percentage of hens kept as layers for the year would be somewhat less

than that indicated in the table since, in a number of cases, the hens were disposed of shortly after the inventory was taken.

Table 18.- Percentage of Hens and Pullets Housed, 118 Poultry Flocks, Nova Scotia, 1946-48

Year	Hens	Pullets	Total
	- per cent -		
1946	5	95	100
1947	9	91	100
1948	15	85	100

As shown in table 18 the percentage of hens housed on October 1 by flocks increased from five per cent of the laying flock in 1946 to 15 per cent in 1948. This, in part, reflects pessimism over the poultry outlook which developed during this period because of rising feed costs. A number of poultrymen who reduced their purchases of chicks later decided to carry over their yearling pullets in order to maintain the enterprise.

In commenting on the merits of hens versus pullets, a number of poultrymen noted that the increased cost of raising replacements might make it more profitable to hold over yearling pullets than was formerly the case. Another comment frequently made was that it was more profitable to carry over the light than the heavy breeds.

#### Sexed Chicks

Seventy per cent of all poultrymen raising young stock purchased only sexed pullet chicks. The balance purchased sexed and/or mixed chicks. Nineteen poultrymen did not purchase chicks. Practically all of these operators indicated this to be an unusual situation resulting from concern over the poultry outlook for 1948. The general reaction of those purchasing sexed pullets was that they had not found cockerel production profitable in recent years. None of the poultrymen raised broilers.

Very few of the 46 poultrymen who planned to expand their poultry enterprises were considering any increase in cockerel production. The general opinion expressed was that the lay flock was the basis of the enterprise and that cockerel production provided a sideline that might be expanded



when and if it appeared profitable. While many producers felt that the decline in cockerel production in recent years was the result of a temporary price-cost adjustment, others felt that it reflected in part an increasing tendency of commercial producers in the province to concentrate on egg production.

### MAJOR FACTORS IN POULTRY MANAGEMENT

Of the various phases of poultry management and practice analysed, three factors seem to exert a major influence on returns. These are: rate of production, size of business, and efficiency in use of labour. While each of these factors exerted a strong influence, it was their combined effect which in the main determined the relative success of each poultry business. The combined influence of these three factors is described in Table 19.

Table 19.- Relation of the Combined Influence of Number of Layers, Per Cent Lay, and Daily Labour per 100 layers to Various Factors, 118 Poultry Flocks, 1947-48

Number of:		Factors			Average	Poultry
factors	:	:	Per	Daily la-	price	labour
above	:	:	cent	bour per	per	returns
average	:Flocks	:Layers	:lay	:100 layers:	dozen	: per hour
:	:	:	:	:	:	:
	- number -	- % -	- minutes -	- ¢ -	- \$ -	
None	29	313	47.5	44	47.3	0.50
One	48	347	54.2	31	43.7	0.85
Two	26	804	55.6	20	43.9	1.15
Three	15	1,129	66.5	17	43.0	2.31
Total or average	118	537	57.2	26	43.8	1.10

Twenty-nine flocks were below average in size of flock, rate of production and efficiency in use of labour whereas 15 flocks were above average in all these factors. The difference in returns secured by the two groups emphasizes the importance of these three factors of poultry management. The fact that the most successful group of poultrymen received the lowest price per dozen for their eggs, whereas the least successful group received the highest price, also emphasizes the importance of management rather than price as the basis of success in the poultry business.

# RELATION OF THE POULTRY FLOCK TO OTHER FARM ENTERPRISES

The farms on which the poultry flocks were located differed widely in size, organization and type of farming, and included most of the combinations of farm enterprises prevailing in the province. The poultry flock was combined successfully with a wide variety of enterprises. In some cases adjustments in management or differences in practice appeared to be associated with the combinations of various enterprises.

Farms were classified by types of farming, on the basis of the days of productive work required under average conditions to care for the various enterprises. On this basis the 118 farms were classified as poultry, part-time, dairy, fruit or mixed farms. On all but the mixed farms more than 50 per cent of productive work was engaged on the enterprise indicated as the farm type.

Table 20.- Farm Business Summary, 118 Poultry Flocks,  
Nova Scotia, 1947-48

Type of farm	:	:	:	:	:	:
	Poultry	Mixed	Part-time	Dairy	Fruit	All farms
No. of farms	47	39	16	10	6	118
Total farm receipts	10,083	8,865	4,616	5,865	7,796	8,466
Total expenses	7,906	7,606	3,066	5,387	6,975	6,890
Farm income	2,177	1,259	1,550	478	821	1,576
Interest at 4%	450	505	234	433	672	449
Operator's labour income	1,727	754	1,316	45	149	1,127
Farm perquisites	404	506	287	363	443	420
Operator's labour earnings	2,131	1,260	1,603	408	592	1,547

The financial returns of the various types of farms studied are compared in Table 20. The summary contains a statement of the receipts and expenses for the overall business, including that of the poultry and other farm enterprises. For the year of the study the farms on which poultry was the major enterprise were financially the most successful. Because of the small number of dairy and fruit farms it would be dangerous to attach too great a significance to the relative returns

of these types of farming. It should also be noted that in most cases either fruit or dairying was one of the main enterprises conducted on the mixed farms. The business year of the study was financially a poor year for fruit producers in Nova Scotia, with both yields and quality being considerably below average.

Table 21.- Measures of Efficiency in Poultry Management and Returns by Types of Farming, 118 Poultry Flocks, Nova Scotia, 1947-48

Type of farm	Farms	Layers	lay	Poultry: labour : per 100: layers	Price : per dozen	Poultry labour returns per hour
	- number -	- % -	- min. -	- ¢ -	- dollars -	
Poultry	47	791	56	24	45.4	1.21
Mixed	39	446	60	26	41.2	1.11
Part-time	16	254	56	36	44.0	.73
Dairy	10	291	49	32	41.5	.50
Fruit	6	290	66	26	40.7	1.18
Total or average	118	537	57	26	43.8	1.10

The data in Table 21 provide an indication of the relative levels of poultry management and returns on the various types of farms studied. Aside from their relatively small size of flock, it would appear that the fruit farmers were somewhat more efficient poultrymen than the other groups. On fruit farms the poultry enterprise forms a source of revenue and employment during the winter months. As a rule it is reduced to a minimum when the springing season starts in the spring. The laying flock is disposed of at an early date, few layers are kept over and in some cases mature pullets are purchased in the fall in preference to the raising of replacements. Most of the farms on which fruit was an important enterprise purchased sexed chicks. The high rate of lay for the six fruit farms in Table 21 is explained in part by the fact that no pullets were carried over a second year and layers were only kept an average of 274 days per year.

While one reason for the shorter period for which layers were kept on the fruit farms might be interpreted as a conflict for labour between the poultry and fruit enterprises, a point of poultry management is also involved. A number



of these poultrymen noted that the low price of eggs in the spring greatly reduced returns from the flock, and that it was their policy to dispose of their layers as soon as feed and egg cost-price relationships made it desirable to do so. In commenting on this point a number of operators indicated they felt it to be a more important feature of poultry business management than was generally recognized.

Aside from their larger size of flock the poultry farms did not have as high standards of management as might be expected from operators specializing in poultry production. The higher returns which they secured appeared to be influenced to a considerable extent by their larger size of flock and the higher price which they received for eggs. The overall size of business on the poultry farms tended to be somewhat below that of the other farms. A number of these poultrymen stated that they planned to expand their farm business mainly through an increase in flock. In some cases the more specialized types of markets to which some of these producers shipped their eggs possibly did not permit as much flexibility of management as was possible in some of the other types of farms.

On the part-time farms the poultry enterprise was combined with work off the farm. Some of the poultry flocks on these farms were very efficiently managed, in other cases the business was not too successful. The latter was particularly the case where the flock received irregular attention due to the operator's absence from the farm on outside employment. On many of the more successful part-time farms, the wife or some member of the family took an active interest in the business. Because of the demands and uncertainties of off-farm employment, many of these poultrymen were hesitant about making extensive investments in buildings and equipment. In a number of cases their flocks were housed in small or inconveniently arranged buildings, as a result of which they required more time to care for their layers than did the other groups. The poultry flocks on part-time farms probably have an indirect bearing on supplies of labour available in some areas. A number of part-time farmers who were engaged in seasonal work such as fruit picking and processing, indicated that they would probably have to seek a more regular type of employment or work elsewhere, were it not for the supplementary revenue provided by the poultry flock.

The low poultry returns of the flocks on the dairy farms are probably more a result of a lower level of poultry management than special conflicts between the dairy and the poultry enterprises. It is possible, however, that due to

the relatively small size of Nova Scotia farms there tends to be some conflict for labour and capital between the poultry and dairy enterprises. If either one or the other is stressed, the minor enterprise may not be of economical size. Farms on which the poultry and dairy enterprises were successfully combined tended to be of relatively large size. The fact that dairy barns can be quite easily converted to poultry pens also probably plays a part. On a number of farms in the study the poultry enterprise had gradually taken over much of the dairy barn during recent years. Probably the major factor responsible for the low returns of flocks on the dairy farms was the low rate of production. Layers were kept for a longer period and there was a higher percentage of hens than for flocks on other types of farms.

The relatively high level of poultry management on the mixed farms is a general indication of the extent to which the poultry flock can be combined successfully with other farm enterprises. These farms kept an average flock of 446 layers as well as other relatively large farm enterprises.

#### THE OUTLOOK FOR POULTRY PRODUCTION IN NOVA SCOTIA

Poultrymen expressed concern over such matters as increasing feed costs, the loss of the British Egg Contract and the possible discontinuation of the Federal Freight Assistance Policy. In general, however, they appeared quite optimistic over the future prospects of the industry. Forty-six poultrymen planned to expand their enterprises as compared with nine who had decided to reduce their size of business. The balance expected to maintain their flocks at about present size. There was general agreement that the poultry business would probably not be as profitable as in the past few years.

Until recent years Nova Scotia has been a poultry deficient area. At present there are periods when supplies of poultry and eggs are imported, but in the course of the year exports and imports are in fairly close balance. Exports consist mainly of eggs shipped to Newfoundland, Bermuda, and the West Indies. Imports of poultry and eggs are almost entirely from other Canadian Provinces.

As Nova Scotia is located at some distance from sources of feed supplies and outside markets it has been suggested that it might be desirable for the industry to stabilize at or about present levels of production. Another reason for this suggestion is uncertainty over the continuation of the

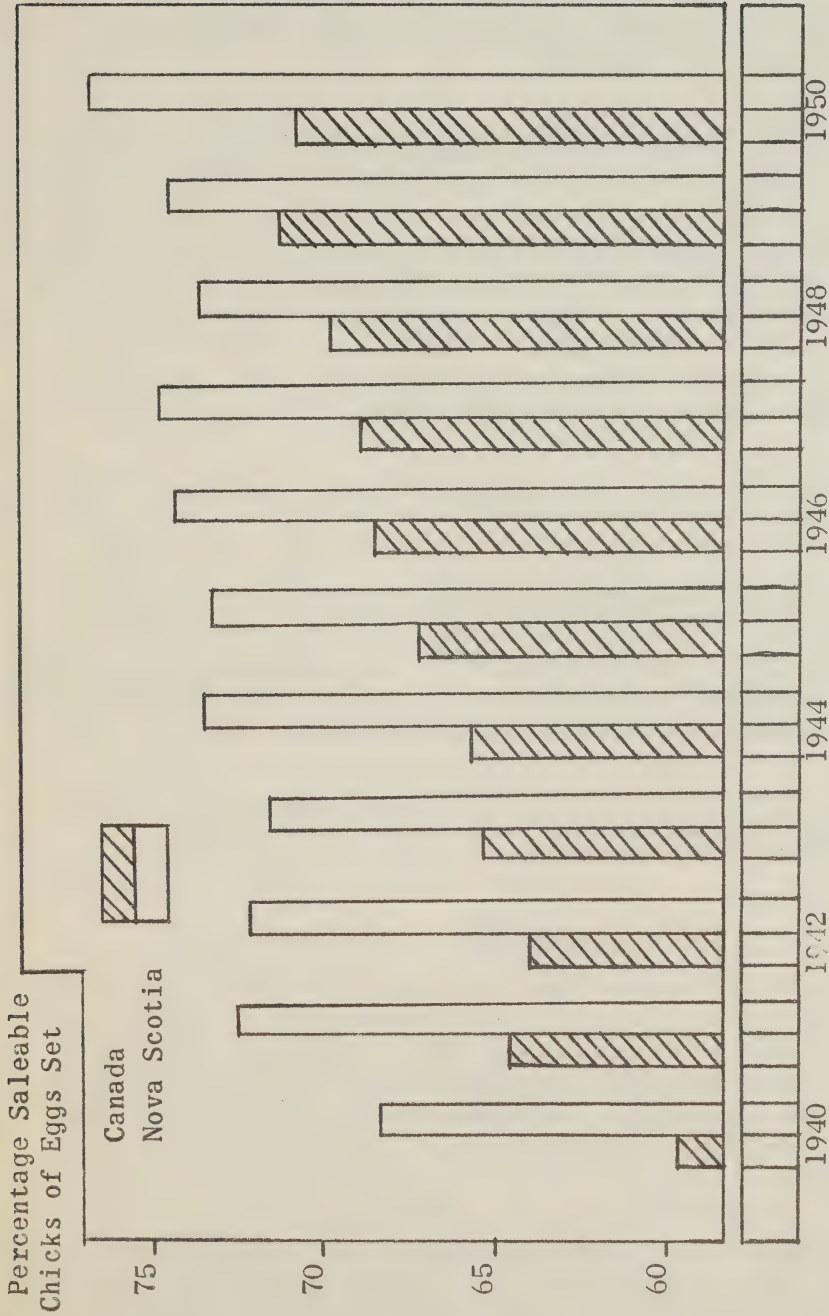


Figure 11.- Comparison of Hatchability Rates: Canada and Nova Scotia 1940-1950.

Source.- Report of the Livestock and Livestock Products Division, Marketing Service, Canada Department of Agriculture.



Federal Freight Assistance Policy which amounts to over \$11 per ton on certain types of feed brought into the province. In view of the general situation with respect to feed supplies and markets it would appear that continued expansion of the industry would be dependent on the maintenance of a relatively high level of efficiency in production and marketing since it would involve greater competition with producers somewhat more favourably located elsewhere.

One phase of management in which Nova Scotian poultry producers appear to be able to compete very favourably with those elsewhere is in the matter of mortality. It has been suggested that greater publicity of the low incidence of poultry disease in the province might result in increased marketings of hatching eggs or baby chicks. With improvements in air transport this market might be extended considerably. Whatever the possibilities in this regard it would seem that some such specialized type of market would provide a very desirable outlet for some expansion in the industry.

It has been said that the operator of a poultry farm has to be a man of considerable ability or the special hazards of the enterprise will soon put him out of business. The high turnover of poultrymen originally enrolled in the study and the general course of events during 1947-48 certainly support this statement. In spite of current difficulties most of the poultrymen in the study appeared to be confident that "there was still a dollar to be made in poultry". The keen interest in, and appreciation of management problems as well as the financial success with which many of them were operating their businesses conveyed an impression of optimism over future developments of the poultry industry in Nova Scotia.

### SUMMARY

The main purpose of the study was to examine and analyse some of the current relationships between flock returns and various phases of poultry management, organization and practice. The analysis was based largely on information provided by 118 commercial poultrymen covering their business operations for the period October 1, 1947, to September 30, 1948.

Investment in the poultry enterprise averaged \$3,166 per farm. Average investment in poultry buildings and equipment was \$1,948 per farm, while that of the poultry flock was \$1,131 per farm.

Poultry receipts averaged \$5,790 per farm while average poultry expenses were \$4,100 per farm. Poultry earnings which were expressed as a return for time spent on the poultry enterprise, averaged \$1.10 per hour.

Size of business was measured by average number of layers kept for the year. The average flock size was 537 layers per farm.

Rate of production was measured by annual per cent lay. This averaged 57.2 per cent for the 118 flocks studied.

Efficiency in use of labour was measured by time spent on daily poultry chores. Poultrymen spent an average of 26 minutes per 100 layers per day in feeding and watering their flocks and in gathering, cleaning, and packing eggs.

Mortality in the laying flocks averaged eight per cent while that in the brooding and range flocks was ten per cent.

Poultrymen received an average price of 43.8 cents per dozen of eggs.

An advance of about one month in layer hatch date was associated with an increase of approximately one cent per dozen in the annual price received for eggs. Since 1929 the annual period of highest prices for eggs on the Halifax Market has advanced approximately one month in every seven years.

Ninety-one of the poultrymen expressed a preference for cross-bred birds, the most favoured type being the Rhode Island Red x Light Sussex cross.

Seventy per cent of poultrymen buying chicks purchased sexed pullets.

Annual feed consumption averaged 120 pounds per layer. A mash to scratch ratio of 51 to 60 per cent was associated with increased poultry labour returns.

Of the various factors of poultry management studied, three factors - size of business, rate of production, and efficiency in use of labour - appeared to exert a major influence on returns. The 15 flocks which were above average in all of these factors secured poultry labour returns of \$2.31 per hour compared with \$0.50 per hour for the 29 flocks which were below average in all of these factors.

The poultry flock was combined successfully with a number of other farm enterprises. Levels of poultry management appeared to be highest on farms where fruit was the major enterprise.

Poultrymen were generally optimistic over the future of the industry. Forty-six planned to expand their flocks while nine expected to reduce the size of the enterprise.

In view of Nova Scotia's rather unfavourable location with respect to feed supplies and outside markets, it would appear that the more specialized types of markets might offer the most profitable outlet for expansion of the industry beyond local market requirements.



Appendix A - Distribution of Farms Studied by Counties, 118  
Poultry Producing Farms in Nova Scotia, 1947-1948

County	Number of farms in study
Kings	34
Annapolis	21
Hants	18
Antigonish	12
Cape Breton	7
Lunenburg	6
Colchester	5
Cumberland	5
Pictou	5
Halifax	4
Richmond	1
Total	118

Appendix B - Chicks Hatched by Nova Scotia Approved Hatcheries,  
1934-1949 <sup>a/</sup>

Year	Hatcheries	Eggs set	Chicks saleable	Saleable chicks of eggs set
		- number -		- per cent -
1934	7	121,982	61,641	50.5
1935	13	234,570	126,104	53.8
1936	23	347,124	220,757	63.6
1937	23	359,591	231,447	64.4
1938	26	461,415	306,632	67.0
1939	33	644,112	428,141	66.5
1940	37	756,233	516,209	68.3
1941	37	927,225	673,662	72.6
1942	31	1,360,056	981,155	72.1
1943	32	1,872,660	1,342,198	71.6
1944	33	2,096,023	1,542,673	73.6
1945	34	1,832,713	1,342,072	73.2
1946	35	2,598,448	1,932,511	74.3
1947	39	2,610,806	2,106,289	74.9
1948	39	2,065,701	1,524,356	73.8
1949	40	2,341,201	1,743,416	74.5

<sup>a/</sup> Annual Reports, Nova Scotia Department of Agriculture and Marketing.

Appendix C - Dressed Poultry Marketed Through Co-operatives in  
Nova Scotia a/, 1934-1949

Year	Pounds
1934	9,434
1935	12,628
1936	42,437
1937	107,556
1938	105,119
1939	122,649
1940	205,132
1941	224,011
1942	340,351
1943	402,748
1944	912,310
1945	586,228
1946	1,147,442
1947	1,832,642
1948	1,209,031
1949	1,474,499

a/ Annual Reports, Nova Scotia Department of Agriculture and Marketing.

Appendix D - Annual Production per Layer, Egg Laying Contests a/,  
Dominion Experimental Farm, Nappan, Nova Scotia, 1919-1934

Year	Eggs per layer
1919-20	121.1
1920-21	127.8
1921-22	138.3
1922-23	143.3
1923-24	176.9
1924-25	165.5
1925-26	156.5
1926-27	170.7
1927-28	162.4
1928-29	170.6
1929-30	184.4
1930-31	194.5
1931-32	180.5
1932-33	193.0
1933-34	164.1
1934-35	203.1

a/ Annual Reports, Dominion Experimental Farm, Nappan, Nova Scotia.

Appendix E - Incidence of Pullorum in Flocks in Nova Scotia.  
Approved Flock Program, 1929-1949 a/

Year	Flocks approved	Flocks without reactors	Total birds tested	Per cent reactors
1929	26	9	2,041	7
1930	29	11	2,320	5
1931	19	6	2,713	2
1932	16	10	2,570	1.5
1933	26	15	3,837	4
1934	55	27	11,046	1.2
1935	77	33	20,108	2.2
1936	95	62	22,000	.5
1937	123	114	25,225	.1
1938	150	139	33,404	.09
1939	178	163	36,854	.12
1940	116	96	38,000	.17
1941	106	77	40,664	.13
1942	143	117	45,121	.13
1943	151	139	59,660	.005
1944	124	109	61,078	.041
1945	123	109	59,021	.099
1946	139	136	79,150	.008
1947	133	132	81,728	.001
1948	77	77	70,252	.000
1949	72	72	78,071	.000

a/ Annual Reports, Nova Scotia Department of Agriculture and Marketing.



Appendix F - Total Number of Birds by Breeds in Approved Hatchery Flocks in Nova Scotia  
for Various Years, 1936-1949 a/

Year	Light Sussex	New Hampshire Red	Barred Plymouth Rock	Rhode Island Red	Single Comb White Leghorn	White Plymouth Rock	Miscellaneous	All breeds
	:	:	:	:	:	:	:	:
	:	:	:	:	- number -	:	:	:
1936	-	45	11,117	622	8,509	-	1,707	22,000
1939	21	3,202	14,992	836	13,205	-	4,598	36,854
1943	8,390	28,829	12,342	1,271	8,528	-	300	59,660
1945	19,352	17,986	10,735	5,227	4,420	-	1,301	59,021
1947	44,745	12,815	11,328	7,506	2,050	250	3,034	81,728
1949	43,789	6,951	9,630	11,599	3,148	246	2,708	78,071

a/ Annual Reports, Nova Scotia Department of Agriculture and Marketing.

Appendix G - Egg Prices and Feed Costs in Nova Scotia a/,  
1914-1949

Year	Farm price per dozen A-L eggs	Farm cost per 100 <u>b/</u> lbs. feed	Pounds of feed 1 doz. A-L eggs would buy
		- dollars -	
1914	.29	1.21	23.7
1915	.28	1.86	15.0
1916	.35	1.55	22.5
1917	.47	2.00	23.5
1918	.55	2.54	21.6
1919	.58	2.58	22.4
1920	.62	2.96	20.9
1921	.46	2.22	20.7
1922	.40	1.67	23.9
1923	.42	1.44	29.1
1924	.43	1.32	32.5
1925	.44	2.29	19.2
1926	.41	2.31	17.7
1927	.45	2.41	18.6
1928	.44	2.20	20.0
1929	.43	2.35	18.2
1930	.40	1.34	29.8
1931	.29	1.36	21.3
1932	.25	1.27	19.6
1933	.23	1.47	15.6
1934	.26	1.70	15.2
1935	.26	1.51	17.2
1936	.29	2.17	13.3
1937	.27	2.16	12.5
1938	.29	1.38	21.0
1939	.27	1.53	17.6
1940	.30	1.51	19.8
1941	.33	1.73	19.0
1942	.39	1.93	20.2
1943	.41	2.25	18.2
1944	.38	2.37	16.0
1945	.39	2.50	15.6
1946	.41	2.51	16.3
1947	.42	2.98	14.0
1948	.51	3.72	13.7
1949	.48	3.83	12.5

a/ Based on dealer quotations reported to Dominion Economics Division, Truro, Nova Scotia.

b/ Averaged quotation of 55 lbs. laying mash and 45 lbs. scratch grain.









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